



110728

Givaudan®

December 3, 2009

VIA ELECTRONIC AND OVERNIGHT MAIL

Raymond Basso, Strategic Integration Manager
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
290 Broadway, 19th Floor
New York, New York 10007-1866

Re: Lower Passaic River Study Area
Supplemental Request for Information

Dear Mr. Basso:

Givaudan Fragrances Corporation ("Givaudan") hereby responds to the Supplemental Request for Information Pursuant to 42 U.S.C. Section 9601-9675 from the United States Environmental Protection Agency ("EPA"), dated September 2, 2009, related to the Lower Passaic River Study Area. This letter supplements Givaudan's prior submissions and responses to EPA's prior 104(e) Request for Information in this matter.

As agreed among the parties, and as confirmed in Ms. Flanagan's email of September 23, 2009, Givaudan is providing its response to the Supplemental Request for Information in two submissions (Part 1 and Part 2). Givaudan submitted Part 1 of its response on October 14, 2009, and submits Part 2 of its response herein. For ease of reference, each of EPA's September 2, 2009 Supplemental Requests are set forth in full below:

1. Provide all information about sewer decommissioning and demolition of buildings on the former Givaudan facility located at 125 Delawanna Avenue, Clifton, New Jersey (the "Givaudan facility") including a copy of the report entitled Remedial Action Report for Sewer Decommissioning (ERM, February 2000), referred to in Givaudan's July 12, 2004 response to EPA's May 13, 2004 Request for Information.

RESPONSE:

The Remedial Action Report for Sewer Decommissioning (ERM, February 2000) was submitted on October 14, 2009 in Part 1 of Givaudan's response. As a supplement to that submission, attached please find subsequent correspondence between Givaudan and the New Jersey Department of Environmental Protection ("NJDEP") regarding the February 2000 Remedial Action Report for Sewer Decommissioning (Attachment G).

G

2. Provide all sediment and/or water column data collected by Givaudan in or adjacent to the Passaic River, Third River and Yantacaw Lake.

RESPONSE:

See Part 1 of Givaudan's response submitted on October 14, 2009.

3. Provide any effluent data (wastewater sampling results) from the hexachlorophene production area and/or the entire Givaudan facility, other than the 1980 – 1981 results provided in Givaudan's July 12, 2004 response to EPA's May 13, 2004 Request for Information.

RESPONSE:

Following receipt of EPA's September 2, 2009 Supplemental Request for Information, Givaudan searched multiple sources for all available information relating to effluent data from the hexachlorophene production area and/or the entire Givaudan facility, including: Givaudan archives, documents maintained by Givaudan's environmental consultant, and reports submitted to regulatory agencies.

The former Givaudan facility in Clifton, New Jersey closed in 1998. Many of the records related to historical operations, such as wastewater monitoring results/effluent data, are believed to have been discarded in the normal course of business. All available effluent data from the hexachlorophene production area is attached hereto (Attachment H).

As set forth in Givaudan's response to EPA's first Request for Information, dated July 9, 2004, the sewer system at the facility was installed in two stages. Sometime prior to March 1946¹, the original sewer system was installed by Givaudan Corporation to collect and discharge process wastewater. In the mid-1980s, portions of the original sewer were abandoned and replaced, or retrofitted with a new sewer. Industrial wastewater was monitored by the facility and underwent equalization and basic neutralization prior to being discharged to the Passaic Valley Sewer Commission. All available wastewater sampling results for the facility are attached hereto (Attachment I).

¹ In review of its prior submissions to EPA during the investigation to respond to EPA's September 2, 2009 Supplemental Request for Information, Givaudan identified what appears to be a typographical error concerning the date of installation of the original sewer system in the response to EPA's first Request for Information (See Givaudan response dated July 9, 2004). Givaudan's July 9, 2004 response correctly listed the sewer system being in place onsite in the "1940's" at page 12, and referenced Attachment 6, which figure is dated 1946. However, page 30 of that response incorrectly listed the sewer system installation date as "in the 1960's". Accordingly, Givaudan hereby amends page 30 of its prior submission to EPA to state that the original sewer was installed "prior to March 1946".

4. Provide all historical photos, including aerial photos, showing conditions and/or operations at the Givaudan facility and/or conditions in the area surrounding the Givaudan facility including Yantacaw Lake and the Third River, in the possession or control of Givaudan and/or Givaudan's contractors or consultants.


RESPONSE:

See Part 1 of Givaudan's response submitted on October 14, 2009. In addition to the aerial photos previously provided, Givaudan has located additional photographs that were identified during its search for documents with respect to Part 2 of its response to EPA's Supplemental Request for Information (Attachment J).

EPA's Supplemental Request for Information included questions that require substantial investigation and historical document review. This submittal includes information that could be gathered within the timeframe allowed by EPA. Accordingly, Givaudan reserves the right to supplement its response based on its continuing investigation.

Thank you for your consideration in this matter.

Very truly yours,


By: John A. Vernieri
Date: 12/21/09

Enclosures

cc: Ms. Sarah Flanagan (w/o encl.)

CERTIFICATION OF ANSWERS TO REQUEST FOR INFORMATION



State of New Jersey :

County of Essex :

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document (response to EPA Request for Information) and all documents submitted herewith, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete, and that all documents submitted herewith are complete and authentic unless otherwise indicated. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I am also aware that my company is under a continuing obligation to supplement its response to EPA's Request for Information if any additional information relevant to the matters addressed in EPA's Request for Information or the company's response thereto should become known or available to the company.

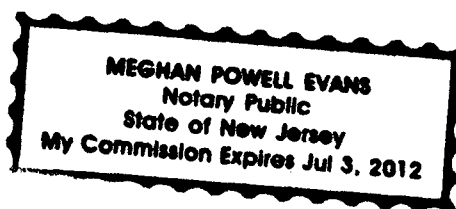
John A. Vernieri
NAME (print or type)

EVP Consumer Products
TITLE (print or type)

John A. Vernieri
SIGNATURE

Sworn to me this 3 day of Dec. 2009

[Signature]
Notary Public Signature





ATTACHMENT G

CORRESPONDENCE REGARDING
THE REMEDIAL ACTION REPORT FOR SEWER DECOMMISSIONING



State of New Jersey

Christine Todd Whitman
Governor

Department of Environmental Protection

Robert C. Shinn, Jr.
Commissioner

Gene Thomas, Director, EH&S Programs
Givaudan Roure Corporation
International Trade Center
300 Waterloo Valley Road
Mt. Olive, NJ 07828

APR 11 2000

Re: Givaudan Roure Corporation ("Givaudan")
125 Delawanna Avenue, Clifton, Passaic County
Block 73.03, Lot 2.02, City of Clifton, Passaic County
Administrative Consent Order Dated: March 5, 1987
ISRA Case No. 97404, Remediation Agreement Dated:
February 2000 Remedial Action Report for Sewer Decommissioning

Dear Mr. Thomas:

The New Jersey Department of Environmental Protection ("NJDEP" or "Department") has reviewed Givaudan Roure Corporation's ("Givaudan") February 2000 Remedial Action ("RA") Report for Sewer Decommissioning, which was prepared by Environmental Resources Management. The report discusses the following remedial activities: removal of chemical sewers and stormwater sewer; closure of stormwater retention pond; removal of cesspools; removal of underground storage tanks; removal of soils associated with the above activities; sampling and analyses; disposition of materials and contaminated soils.

Based on the Department's review of this document, it has been determined that the Remedial Action Report is acceptable pending incorporation of the technical modifications and supplementation of the outstanding issues as discussed below.

Comments

1. The document is thorough, well organized, and comprehensive. The Department appreciates and commends Givaudan's current environmental managers for their proactive approach in addressing the source areas of concern noted above.
2. Analytical Testing and Results: Due to the large volume of sample data, Givaudan (at the Department's request) has not yet submitted laboratory deliverables for validation. Since the data have not been validated, the remedial action report is reviewed under the assumption that the data are usable. The Department will request specific data to be validated following our review of the April 2000 Remedial Action Work Plan for Soils.
3. Page 3-10, Section 3.6.4: It is stated in this section of the report that soil and gravel, supplied by off-site sources, were used for backfilling purposes. Appendix D included a "Clean Fill Certification" provided by Braen Stone Industries for an undisclosed volume of "crushed stone" supplied to Givaudan. In accordance with the Department's Technical Requirements for Site Remediation, N.J.A.C. 7:26E-6.4(b)2, bills of lading and other pertinent information must be provided to the Department to document the source(s) of fill.

Specifically, this information needs to be provided for the fill, which was supplied to and used by Givaudan without a "clean" certification.

4. Page 3-11, Section 3.7: This section provides a detailed discussion of the rationale used by Givaudan to evaluate the potential for onsite reuse of excavated soil/materials. Givaudan has also included a detailed summary of the criteria used to evaluate the reuse of soils known to contain listed hazardous waste. This information is also presented and discussed in the December 21, 1999 report entitled: "Pilot Treatment of Soil Using Mobile Injection Treatment Unit". The Department is in the process of completing a review of that document. Be advised that the Department's position, regarding the management of hazardous soils at the site, will be provided to Givaudan in an upcoming comment letter addressing the December 1999 report.
5. Page 3-13, Section 3.8: A pilot study using the Mobile Injection Treatment Unit technology ("MITU") was conducted on a portion of chemical sewer-impacted soils. As noted, the MITU did not successfully treat all of the soils. Please expand Section 3.8 to specifically state how the soils not effectively treated by the MITU were eventually addressed. It can be inferred from the report that the soils that did not meet on-site reuse criteria were disposed offsite. However, it would be helpful to the reader to clarify this issue.
6. Page 3-15, Section 3.11: The report states that documentation pertaining to the tank removal will be presented in a separate report (e.g., waste characterization, transportation and disposal information). Givaudan needs to discuss the anticipated timeframe for this submittal.
7. Page 5-10, Section 5.4.1: Givaudan needs to elaborate on the nature of sample A-60-Stone-B, which was collected in the Cesspools area. It is the Department's position that given the elevated concentrations of VOCs, SVOCs and metals reported in this area, contaminated soils present at this location represent a source of ground-water contamination.
8. Page 5-11, Section 5.4.4: Sections discussing the former Spent Acid Pit and former Stormwater Retention Pond are potentially unrepresentative, because they do not address investigative activities and associated analytical results from the Draft Status Report (June 1999). As described in the Draft Status Report, the Spent Acid Pit and Stormwater Retention Pond were defined as Area C. Area C was extensively sampled, and in addition to organic and metals contamination, three different residual products were found in this area of concern. It is not necessary for Givaudan to reiterate the entire Area C write-up within this remedial action report. However, the discussion should be expanded to both address the issue and reference the Draft Status Report.
9. Page 5-13, Section 5.4.8: Givaudan states that a separate report documenting the closure of the Building 9 Tanks will be submitted separately. Please refer to Comment 6.
10. Page 6-2, Second to Last Paragraph, Section 6.0: The report notes "areas in which currently existing concentrations of organics exceed the IGWSCC are not considered to be of significant concern." The Department does not agree with this conclusion because it does not address contamination detected in prior investigations, and associated remedial alternative proposals under consideration. As an example, see Area A, Draft Status Report,

in which groundwater extraction coupled with bioventing/SVE are proposed to address VOC contamination. See also Comment 8.

If you have any questions, please contact me at (609) 633-0715.

Sincerely,



Maria Franco-Spera, Case Manager
Bureau of Case Management

C: Chris Kanakis, Acting Section Chief, BSCM, NJDEP
Ann Charles, Technical Coordinator, BEERA, NJDEP
Daryl Clark, Geologist, BGWPAb, NJDEP
Richard Wroblewski, ERM Project Manager, ERM, 855 Springdale Drive, Exton, PA 19341

Environmental
Resources
Management

855 Springdale Drive
Exton, Pennsylvania 19341
(610) 524-3500
(610) 524-7335 (fax)
<http://www.erm.com>

29 June 2000
Reference: 22329.00.01

Ms. Maria Franco-Spera
Case Manager
Bureau of State Case Management
New Jersey Department of
Environmental Protection
401 East State Street, CN048
Trenton, New Jersey 08625



RE: Givaudan Roure Corporation ("Givaudan")
125 Delawanna Avenue
Block 73.03, Lot 2.02, City of Clifton, Passaic County
Administrative Consent Order Dated: 5 March, 1987
ISRA Case No. 97404, 1 January 1988 Remediation Agreement
February 2000 Remedial Action Report for Sewer
Decommissioning
Response to Comments

Dear Maria:

Environmental Resources Management, Inc. (ERM) and Givaudan Roure Corporation (Givaudan) have reviewed the comments to the February 2000 Remedial Action Report for Sewer Decommissioning (Report) provided by the New Jersey Department of Environmental Protection (Department) in correspondence to Givaudan dated 17 April 2000. At the request of Givaudan, ERM has prepared the following responses to the Department's comments.

For reference purposes, the Department's 17 April 2000 letter commenting on the Report is attached. Provided below are the Department's comments in italicized text as they appeared on the original letter. Responses to the Department's comments immediately follow each numbered comment in normal text.

Please note that the comments start with number "2" as comment number "1" does not require action. Givaudan and ERM appreciate the Department's compliment provided as comment number 1, and would like to thank the Department for their responsiveness, guidance and assistance with this project.

RESPONSE TO COMMENTS

2. Analytical Testing and Results: Due to the large volume of sample data, Givaudan (at the Department's request) has not yet submitted laboratory deliverables for validation. Since the data have not been validated, the remedial action report is reviewed under the assumption that the data are usable. The Department will request specific data to be validated following our review of the April 2000 Remedial Action Work Plan for Soils.

This comment is noted. Data will be provided for review upon request from the Department.

3. Page 3-10, Section 3.6.4: It is stated in this section of the report that soil and gravel, supplied by off-site sources, were used for backfilling purposes. Appendix D included a "Clean Fill Certification" provided by Braen Stone Industries for an undisclosed volume of "crushed stone" supplied to Givaudan. In accordance with the Department's Technical Requirements for Site Remediation, N.J.A.C 7:26E-6.4(b)2, bills of lading and other pertinent information must be provided to the Department to document the source(s) of fill. Specifically, this information needs to be provided for the fill, which was supplied to and used by Givaudan without a "clean" certification.

Bills of lading and load tickets documenting the fill supplied from offsite sources are attached. This information is to be added to Appendix D. Due to the large amount of information to be added to Appendix D, a new Volume, entitled Volume IA, Appendix D, will replace the former Appendix D in Volume I. As appropriate, the title to Appendix D has been revised to "Fill Certification and Transportation Documents". Section 3.6.4, which begins on page 3-10 of the Report, has been revised to clarify the offsite sources of fill used for backfilling.

A summary of the offsite sources for fill and the processes used to evaluate if the fill was suitable for backfilling is provided on pages 3-10A and 3-10B. A revised Appendix D cover page and pages 3-10A and 3-10B are attached for inclusion in the Report. Please replace the existing Appendix D cover page and insert pages 3-10A and 3-10B immediately following page 3-10.

ERM-FAST analytical results used to evaluate if fill delivered to the site without "clean" certification was suitable for onsite use are provided in Appendix E (ERM-FAST Fill Analytical Results)

4. Page 3-11, Section 3.7: This section provides a detailed discussion of the rationale used by Givaudan to evaluate the potential for onsite reuse of excavated soil/materials. Givaudan has also included a detailed summary of the criteria used to evaluate the reuse of soils known to contain listed hazardous waste. This information is also presented and discussed in the December 21, 1999 report

entitled: "Pilot Treatment of Soil Using Mobile Injection Treatment Unit." The Department is in the process of completing a review of that document. Be advised that the Department's position, regarding the management of hazardous soils at the site, will be provided to Givaudan in an upcoming comment letter addressing the December 1999 report.

This comment is noted.

5. Page 3-13, Section 3.8: A pilot study using the Mobile Injection Treatment Unit Technology ("MITU") was conducted on a portion of chemical sewer-impacted soils. As noted, the MITU did not successfully treat all of the soils. Please expand Section 3.8 to specifically state how the soils not effectively treated by the MITU were eventually addressed. It can be inferred from the report that the soils that did not meet on-site reuse criteria were disposed offsite. However, it would be helpful to the reader to clarify this issue.

Section 3.8 has been modified to explicitly state that soils not effectively treated by the MITU were disposed of offsite consistent with the procedures discussed in Section 3.9 (Soil Recycling).

6. Page 3-15, Section 3.11: The report states that documentation pertaining to the tank removal will be presented in a separate report (e.g., waste characterization, transportation and disposal information). Givaudan needs to discuss the anticipated timeframe for this submittal

It is anticipated that the report discussing the removal of the four tanks formerly located beneath Building 9 will be submitted in July 2000.

7. Page 5-10, Section 5.4.1: Givaudan needs to elaborate on the nature of sample A-60-Stone-B, which was collected in the Cesspools area. It is the Department's position that given the elevated concentrations of VOCs, SVOCs and metals reported in this area, contaminated soils present at this location represent a source of ground-water contamination.

Givaudan agrees that this area represents a historical source of impacts to ground water. The text in section 5.4.1 will be modified to acknowledge this location as a historical source of impacts to ground water, give a brief summary of additional investigations and provide references as to where a more detailed discussion of the area may be found. Page 5-10A is to be added immediately following page 5-10 of the original report to elaborate on the findings in this area. Please note that the second bulleted item presented in the conclusions section (Section 6.0) of the Report has also been modified to acknowledge the cesspools as a historical source of impacts to ground water.

8. Page 5-11, Section 5.4.4: Sections discussing the former Spent Acid Pit and former Stormwater Retention Pond are potentially unrepresentative, because they do not address investigative activities and associated analytical results from the Draft Status Report (June 1999). As described in the Draft Status Report, the Spent Acid Pit and Stormwater Retention Pond were defined as Area C. Area C was extensively sampled, and in addition to organic and metals contamination, three different residual products were found in this area of concern. It is not necessary for Givaudan to reiterate the entire Area C write-up within this remedial action report. However, the discussion should be expanded to both address the issue and reference the Draft Status Report.

At the time the Report was reviewed, the Interim Ground Water Report (IGWR) and Remedial Action Work Plan for Soils (RAWPS) had not yet been submitted to the Department for review. A detailed discussion of the soil and ground water investigations in Area C is provided in the IGWR and RAWPS. The Report was only intended to address the sewer decommissioning activities in anticipation of the comprehensive evaluations presented in the IGWR and RAWPS. However, it is understood that the reader may not have the benefit of knowledge of, or accessibility to the IGWR and RAWPS while reviewing the Report. The discussion in Section 5.4.4. will be modified so that it does not potentially misrepresent the soil and ground water quality in Area C. Page 5-11A, which provides a summary of the findings in Area C is to be added to the Report. References to the appropriate sections of the IGWR and RAWPS will be provided to direct the reader to the appropriate comprehensive discussions of this area.

9. Page 5-13, Section 5.4.8: Givaudan states that a separate report documenting the closure of the Building 9 Tanks will be submitted separately. Please refer to Comment 6.

It is anticipated that the report discussing the removal of the four tanks formerly located beneath Building 9 will be submitted in July 2000.

10. Page 6-2, Second to Last Paragraph, Section 6.0: The report notes "areas in which currently existing concentrations of organics exceed the IGWSCC are not considered to be of significant concern." The Department does not agree with this conclusion because it does not address contamination detected in prior investigations, and associated remedial alternative proposals under consideration. As an example, see Area A, Draft Status Report, in which groundwater extraction coupled with bioventing/SVE are proposed to address VOC contamination. See also Comment 8.

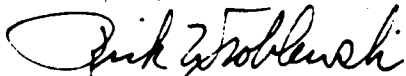
The text in Section 6.0 will be revised to address this comment. The phrase "not of significant concern" will be deleted. A more specific discussion of

why Givaudan does not feel that the remaining locations that contain constituents at concentrations exceeding the more stringent of their respective RDCSCC or IGWSCC do not require active soil remediation will be added.

Revisions to the Report, as well as additional documentation requested by the Department are attached. A revised cover page is also attached. Upon receipt, please replace all of the existing pages in the February 2000 Report with the corresponding revised pages and insert the additional documentation in the appropriate appendix.

If you have any questions or require additional information, please contact Gene Thomas at Givaudan at (973) 448-6555.

Sincerely,



Richard Wroblewski, P.G.
Project Manager

Attachments: Correspondence from NJDEP dated 17 April 2000

cc: G. Thomas, Givaudan
Dave Haller, ERM
John Hogue, ERM

ATTACHMENT H

EFFLUENT DATA FROM HEXACHLOROPHENE PRODUCTION

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

APPLICATION FOR PERMIT TO DISCHARGE TO A DOMESTIC TREATMENT WORKS



Facility Name GIVAUDAN CORPORATION		2. D.E.P. ID No. (Official Use Only)	
Sewer System Owner P.V.S.C.		Treatment Plant Owner P.V.S.C.	

This application must include: (See Instructions)
a. Discharge Location Map ☒ b. List of Building Floor Drains c. Line Drawing ☒

Average Flows and Treatment (For Each Discharge to DTW System)

OUTFALL Name or No.	B. OPERATION CONTRIBUTING FLOW		C. TREATMENT	
	1. Operations (List)	2. Average Flow (Include Units)	1. Description	2. Codes From Table I
O. 1 River Road	Manufacturing of Organic	1.4x10 ⁶ M.G.D.	Neutralization	
	Chemicals			
O. 2 Building 03	Fragrance Blending	10,000 gallons/week	(None)	
	Operation			
O. 3 Bakery Drive	Flavor Manufacturing	100,000 gallons/week	(None)	
	Area & Office Building			

Intermittent Flow (Complete if any discharge described in 5. above is intermittent or seasonal)

OUTFALL Name or No.	OPERATIONS CONTRIBUTING FLOW	FREQUENCY	DURATION	FLOW RATE	TOTAL VOLUME

Maximum Production ☒ A. Does an effluent guideline limitation promulgated under Section 304 of the Federal Act apply to your facility? ☐ Yes (Complete 7B) ☒ No (Go to Item 8)

Are the limitations in the applicable effluent guideline expressed in terms of production (or other measure of operation)? ☐ Yes (Complete 7C) ☐ No (Go to Item 8)

If answer to 7B is Yes, list quantity which represents a reasonable measure of actual production, in terms and units used in the applicable effluent guideline.

QUANTITY PER DAY	UNITS OF MEASURE	OPERATIONS, PRODUCT, MATERIAL, ETC.	AFFECTED OUTFALLS

APPLICATION FOR PERMIT TO DISCHARGE TO A DOMESTIC TREATMENT WORKS

8. Improvements

Complete this table only if you are now required by any federal, state or local authority to meet any implementation schedule for construction, upgrading or operation of wastewater treatment equipment or practices, or connection to a DTW.

IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	AFFECTED OUTFALLS		DESCRIPTION	FINAL COMPLI. DATE	
	No.	Source		Required	Projected
Condition of industrial waste permit from P.V.S.C. (to better control pH of effluent)	1	River Road	Planning construction of effluent treatment plant		1983

9. Effluent Data - Part A

Discharge Point (Name or No.)

PARAMETERS (Give quantity in ppm or mg/l)	No. 1 River Road	No. 2 Building 103	No. 3 Peekay Drive	
Biochemical Oxygen Demand	620 mg/l	172 mg/l	700 mg/l	
Chemical Oxygen Demand	1400 mg/l	276 mg/l	1719 mg/l	
Total Organic Carbon	390 mg/l	---	---	
Total Suspended Solids	3800 mg/l	67 mg/l	138 mg/l	
Total Dissolved Solids	3700 mg/l	169 mg/l	573 mg/l	
Ammonia (as N)	1.0 mg/l	1.87 mg/l	1.12 mg/l	
Temperature (°C) - Summer				
(°C) - Winter				
pH (in standard units)	6.97	7.27	7.12	

Effluent Data - Part B

OUTFALL (Name or No.)	PARAMETER	REASON POLLUTANT EXPECTED	AVAILABLE QUANTITATIVE DATA
		SEE ATTACHMENT	

Complete Part C and Part D according to instructions. Include all attachments required in the instructions.

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Name

[Signature] (J.M. TAP)

Title

U.P. FINANCE

365-8383

Date 4/11/81

Phone



Answer all questions.
Please print or type.

- H. Overland Flow
- I. Rapid Infiltration
- J. Surface Impoundment
- K. Underground Injection
- L. Discharge to a Domestic Treatment Works**

81

8. List any and all permits or construction approvals granted to this facility by either the New Jersey Department of Environmental Protection or the United States Environmental Protection Agency pursuant to the following programs.

<u>PROGRAM</u>	<u>PERMIT NUMBER</u>	<u>DATE ISSUED</u>	<u>EXPIRATION DATE</u>
A. Hazardous Waste Management (RCRA)	NJ0002156354		
B. National Pollutant Discharge Elimination System (NPDES)			
C. New Jersey Pollutant Discharge Elimination System (NJPDES)	Permit Application N.J. 0099414	10/5/81	
D. Treatment Works Approval (NJ) (Also known as the Construct and Operate Permit)			
<u>CLEAN AIR ACT</u>			
E. Prevention of Significant Deterioration			
F. Non-Attainment Program			
G. National Emission Standards for Hazardous Air Pollutants			
H. Dredge or Fill Permit			
I. Ocean Dumping Permit			
J. Other (Specify)			
<u>State Air Pollution Permit</u>	<u>Site I.D. # -</u> 30064	<u>Total No. of Permits -</u> Over 250	

9. If applicable, identify all administrative orders, temporary or permanent injunctions, civil administrative penalties, civil penalties, or criminal actions issued against the applicant concerning pollution during the last five (5) years.

<u>ENFORCEMENT ACTION</u>	<u>DATE OF ACTION</u>	<u>RESULT</u>
Labelling violation for P.C.B. transformers	10/6/80	\$7,000 fine - court agreement
Order - violation of NJAC 7:27-16.6	4/3/81	Extension - Under consideration

10. If applicable, list all locations within the facility which are involved in the storage of solid or liquid waste at the facility for which the NJPDES application is being made and the ultimate disposal sites of solid or liquid wastes generated by the facility being permitted _____

<u>STORAGE SITE(S)</u>	<u>ULTIMATE DISPOSAL SITE(S)</u>
SEE ATTACHMENT - "WASTE DISPOSAL"	

11. This application is for a
- ☐ New source groundwater permit (final draft)
 - ☐ Modification to an existing permit
 - ☐ Renewal of existing permit
 - ☐ New source surface water permit (DAC)
 - ☐ Variance
 - ☒ Discharge to a Domestic Treatment Works [☐ New ☒ Existing]

EFFLUENT DATA - PART B
GIVAUDAN CORPORATION
CLIFTON PLANT
RESULTS OF LABORATORY ANALYSIS (1)
HEAVY METALS AND PRIORITY POLLUTANTS USED

<u>PARAMETER</u>	<u>Location No. 1</u> (River Road Meter) (MG/L)	<u>Location No. 2</u>	<u>Location No. 3</u> (Peckay Drive) (MG/L)
Total Cyanide	0.02	No need for analysis because of nature of effluent.	0.03
Arsenic	0.159		LT0.001
Chromium	LT0.013		LT0.013
Copper	2.011		0.084
Lead	LT0.045		LT0.045
Manganese	569.62		0.248
Mercury	LT0.0007		LT0.0007
Nickel	0.647		LT0.020
Zinc	1.761		0.224
Acrolein	LT0.010		LT0.010
Benzene	LT0.010		0.036
Toluene	LT0.010		0.382
Ethylene Dichloride	LT0.010		LT0.010
Methylene Chloride	LT0.010		LT0.010
PCB's	LT0.010		LT0.010
Chlorophenol	LT0.025		LT0.025
Trichlorophenol	0.026		LT0.025
Napthalene	LT0.010		LT0.010
Nitrobenzene	0.017		LT0.010
Formaldehyde	LT0.010		LT0.010

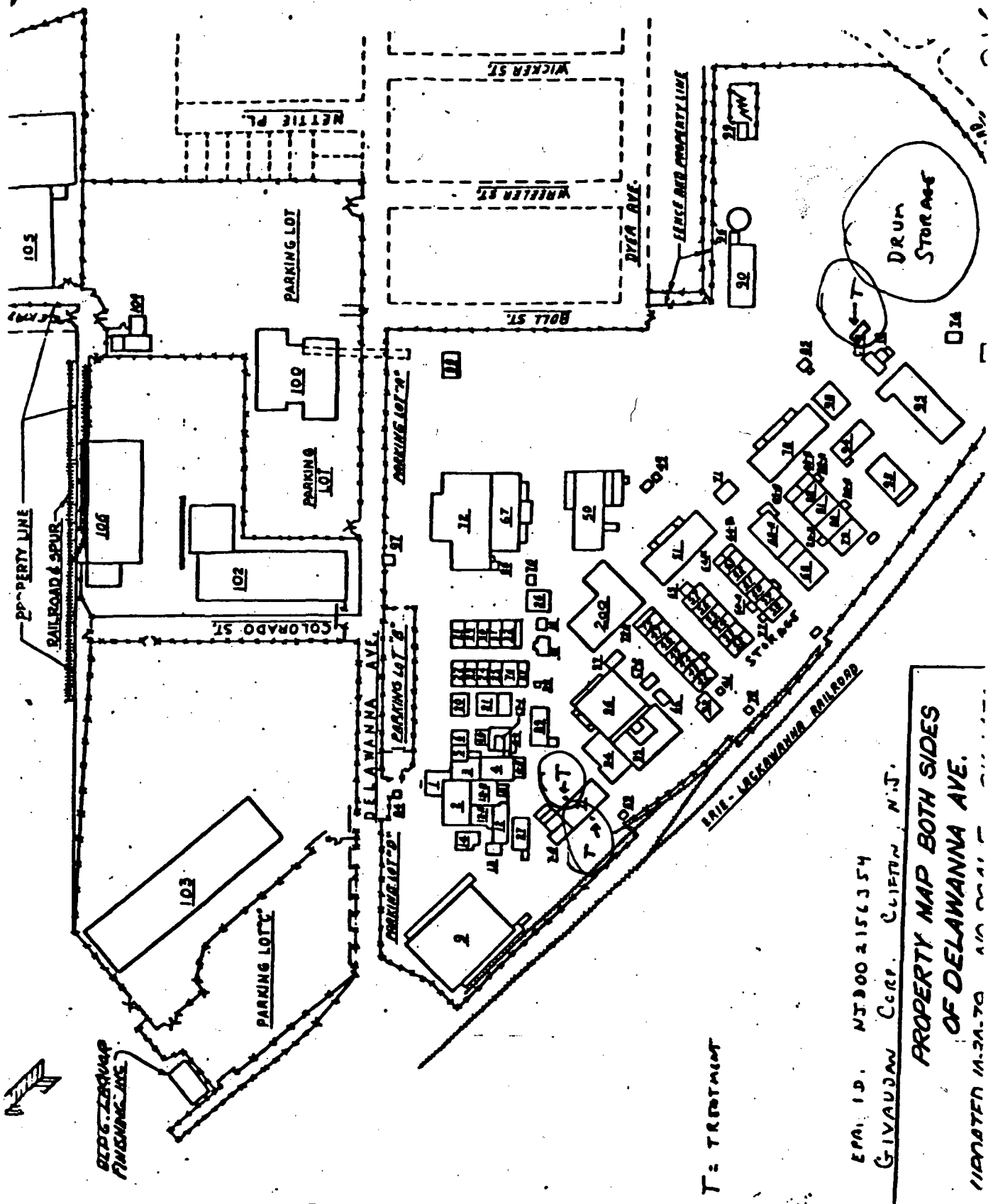
(1) Flow Compositing Samples Obtained As a Weekly Composite for the Week of January 18-25, 1981
 LT- Less Than

"WASTE DISPOSAL"

waste is stored in drums, while awaiting disposal, in area marked "Drum Storage". (See accompanying map.)

Combustible waste, both hazardous and non-hazardous is used as a non-commercial fuel to produce steam for plant operation after being blended in area marked "T". (See accompanying map.)

Other waste, hazardous and non-hazardous, is shipped to an approved landfill or approved incineration facility.



EPA ID. NJ3002156354
 GIVAUDAN CORP. CLIFTON, N.J.
 PROPERTY MAP BOTH SIDES
 OF DELAWANNA AVE.
 DATED 11-21-70

APPLICATION FOR PERMIT TO DISCHARGE TO A DOMESTIC TREATMENT WORKS

Effluent Data - Part C

Outfall No. 1 (River Road)

POLLUTANT AND CAS NO. (if available)	MARK "X" Be- lieved Pre- sent	Be- lieved Ab- sent	EFFLUENT CONCENTRATION	UNITS	NO. OF ANAL- YSES	POLLUTANT AND CAS NO. (if available)	MARK "X" Be- lieved Pre- sent	Be- lieved Ab- sent	EFFLUENT CONCENTRATION	UNITS	NO. OF ANAL- YSES
Bromide (24959-67-6)		X				Sulfide (as S)			LT 0.1	mg/l	1
Chlorine, Total Residual		X				Sulfite (as SO ₃) (14285-45-3)			3.2	mg/l	1
Color			500	apparent color unit	1	Surfactants			0.50	mg/l	1
Fecal Coliform	X					Aluminum, Total (7429-90-5)		X			
Fluoride (16984-48-8)		X				Barium, Total (7440-39-3)		X			
Nitrate- Nitrite (as N)			10	mg/l	1	Boron, Total (7440-42-8)			0.24		1
Nitrogen, Total Organic (as N)			6.4	mg/l	1	Cobalt, Total (7440-48-4)		X			
Oil and Grease			45.0			Iron, Total (7439-89-6)			9.2	mg/l	1
Phosphorus (as P), Total (7723-14-0)		X				Magnesium, Total (7439-95-4)		X			
Radioactivity						Molybdenum, Tot. (7439-98-7)		X			
(1) Alpha, Total		X				Manganese, Total (7439-96-5)			569		
(2) Beta, Total		X				Tin, Total (7440-31-6)			.05	mg/l	1
(3) Radium, Total		X				Titanium, Total (7440-32-6)		X			
(4) Radium 226, Total		X									
Sulfate (as SO ₄) (14808-79-8)			1400	mg/l	1						

Effluent Data - Part C

Outfall No. 2 (Building 103)

POLLUTANT AND CAS NO. (if available)	MARK "X" Be- lieved Pre- sent	Be- lieved Ab- sent	EFFLUENT CONCENTRATION	UNITS	NO. OF ANAL- YSES	POLLUTANT AND CAS NO. (if available)	MARK "X" Be- lieved Pre- sent	Be- lieved Ab- sent	EFFLUENT CONCENTRATION	UNITS	NO. OF ANAL- YSES
Bromide (24959-67-6)		X				Sulfide (as S)			0.1	mg/l	1
Chlorine, Total Residual		X				Sulfite (as SO ₃) (14285-45-3)			1.0	mg/l	1
Color			10	apparent color unit	1	Surfactants			2.21	mg/l	1
Fecal Coliform	X					Aluminum, Total (7429-90-5)		X			
Fluoride (16984-48-8)		X				Barium, Total (7440-39-3)		X			
Nitrate- Nitrite (as N)			0.24	mg/l	1	Boron, Total (7440-42-8)			LT 1	mg/l	1
Nitrogen, Total Organic (as N)			8.74	mg/l	1	Cobalt, Total (7440-48-4)		X			
Oil and Grease			12.5	mg/l	1	Iron, Total (7439-89-6)			1.11	mg/l	1
Phosphorus (as P), Total (7723-14-0)			3.49	mg/l	1	Magnesium, Total (7439-95-4)		X			
Radioactivity						Molybdenum, Tot. (7439-98-7)		X			
(1) Alpha, Total	X					Manganese, Total (7439-96-5)		X			
(2) Beta, Total	X					Tin, Total (7440-31-6)			LT .45	mg/l	1
(3) Radium, Total	X					Titanium, Total (7440-32-6)		X			
(4) Radium 226, Total	X										
Sulfate (as SO ₄) (14808-79-8)			153	mg/l	1						

APPLICATION FOR PERMIT TO DISCHARGE TO A DOMESTIC TREATMENT WORKS

Effluen: Data - Part C

Outfall No. 3 Building 105

POLLUTANT AI 3 CAS NO. (if avail. b/c)	MARK "X"		EFFLUENT CONCENTRATION	UNITS	NO. OF ANAL- YSES	POLLUTANT AND CAS NO. (if available)	MARK "X"		EFFLUENT CONCENTRATION	UNITS	NO. OF ANA- LYSE
	Be- lieved Pre- sent	Be- lieved Ab- sent					Be- lieved Pre- sent	Be- lieved Ab- sent			
Bromide (24959-67-6)		X				Sulfide (as S)			LT 1.0		1
Chlorine, Total Residual		X				Sulfite (as SO ₃) (14265-45-3)			LT 6.0		
Color			20	apparent color unit	1	Surfactants			8.24		
Fecal Coliform	X					Aluminum, Total (7429-90-5)		X			
Fluoride (16984-48-8)		X				Barium, Total (7440-39-3)		X			
Nitrate- Nitrite (as N)			LT .02	mg/l	1	Boron, Total (7440-42-8)			LT 1.0		
Nitrogen, Total Organic (as N)			11.2	mg/l	1	Cobalt, Total (7440-48-4)		X			
Oil and Grease			345	mg/l	1	Iron, Total (7439-89-6)			7.31		
Phosphorus (as P), Total (7723-14-0)		X				Magnesium, Total (7439-95-4)		X			
Radioactivity (1) Alpha, Total		X				Molybdenum, Tot. (7439-98-7)		X			
(2) Beta, Total		X				Manganese, Total (7439-96-5)			0.248		
(3) Radium, Total		X				Tin, Total (7440-31-6)			LT 0.45		
(4) Radium 226, Total		X				Titanium, Total (7440-32-6)		X			
Sulfate (as SO ₄) (14808-79-8)			250		1						

Effluent Data - Part C

Outfall No.[illegible]

1, 3, 7, 8 Tetrachlorodibenzo-p-dioxin (T.C.D.D.)

T.C.D.D. is a potential contaminant in one of our raw materials, 2, 4, 5 trichlorophenol, which is used to manufacture hexachlorophene. Our specification calls for less than 10 parts per billion of this contaminant in the trichlorophenol.

Waste water from the manufacture of hexachlorophene have been tested and no detectable quantities of T.C.D.D. found. An intensive investigation of the waste water from the manufacture of hexachlorophene was conducted by the E.P.A. in May of 1978. A report of the findings of this investigation are on file with the E.P.A. in Washington D.C.

APPLICATION FOR PERMIT TO DISCHARGE TO A DOMESTIC TREATMENT WORKS

Effluent Data - Part D

Outfall No. 1 (River Road)

POLLUTANT AND CAS NO. (if available)	MARK "X"			EFFLUENT CONCENTRATION	UNITS	NO. OF ANAL- YSES	POLLUTANT AND CAS NO. (if available)	MARK "X"			EFFLUENT CONCENTRATION	UNITS	NO. OF ANAL- YSES
	Test- ing Re- quired	Be- lieved Pre- sent	Be- lieved Ab- sent					Test- ing Re- quired	Be- lieved Pre- sent	Be- lieved Ab- sent			
METALS, CYANIDE, AND TOTAL PHENOLS							METALS, CYANIDE, AND TOTAL PHENOLS						
1M. Antimony Total (7440-38-6)				LT .05	mg/l	1	9M. Nickel Total (7440-02-0)				.52	mg/l	1
2M. Arsenic Total (7440-33-2)				LT .05	mg/l	1	10M. Selenium Total (7782-49-2)				LT .01	mg/l	1
3M. Barium Total (7440-41-7)			X				11M. Silver, Total (7440-22-4)				LT .01	mg/l	1
4M. Cadmium Total (7440-43-6)				LT .01	mg/l	1	12M. Thallium Total (7440-28-0)			X			
5M. Chromium Total (7440-47-3)				LT .05	mg/l	1	13M. Zinc, Total (7440-66-6)				LT 0.05	mg/l	1
6M. Copper Total (7560-50-8)				.21	mg/l	1	14M. Cyanide Total (57-12-6)				.02	mg/l	1
7M. Lead, Total (7439-92-1)				.08	mg/l	1	15M. Phenols, Total	See Attachment					
8M. Mercury Total (7439-97-6)				LT .002	mg/l	1	Effluent Data - Part B						
DIOXIN (NOTE: See Section 10.5(c) 10.v. of the NJPDES Regulation prior to completing this item.)													
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)													
DESCRIBE RESULTS See attachment													
GC/MS FRACTION - VOLATILE COMPOUNDS							GC/MS FRACTION - VOLATILE COMPOUNDS						
1V. Acrolein (107-02-8)				LT .010	mg/l	1	17V. 1,2-Dichloro- propane (78-67-8)			X			
2V. Acrylonitrile (107-13-1)			X				18V. 1,3-Dichloro- propylene (542-75-6)			X			
3V. Benzene (71-43-2)				LT .010	mg/l	1	19V. Ethylbenzene (100-41-4)			X			
4V. Bis (Chloro- methyl) Ether (542-86-1)			X				20V. Methyl Bromide (74-83-6)			X			
5V. Bromoform (75-25-2)			X				21V. Methyl Chloride (74-87-8)			X			
6V. Carbon Tetra- chloride (56-23-6)			X				22V. Methylene Chloride (75-09-2)				LT .010	mg/l	1
7V. Chloro- benzene (108-90-7)			X				23V. 1,1,1,3-Tetra- chloroethane (79-34-5)			X			
8V. Chlorodibromo- methane (124-48-1)			X				24V. Tetrachloro- ethylene (127-18-4)			X			
9V. Chloroethane (75-00-3)			X				25V. Toluene (108-66-3)				LT .010	mg/l	1
10V. 2-Chloro- ethylvinyl Ether (110-75-8)			X				26V. 1,2-Trans- Dichloroethylene (156-60-8)			X			
11V. Chloroform (67-66-3)			X				27V. 1,1,1-Tris- chloroethane (71-58-6)			X			
12V. Dichloro- bromomethane (75-27-4)			X				28V. 1,1,2-Tris- chloroethane (78-00-6)			X			
13V. Dichloro- difluoromethane (75-71-6)			X				29V. Trichloro- ethylene (79-01-6)			X			
14V. 1,1-Dichloro- ethane (78-34-3)			X				30V. Trichloro- fluoromethane (75-69-4)			X			
15V. 1,2-Dichloro- ethane (107-06-2)				LT .010		/	31V. Vinyl Chloride (75-01-4)			X			
16V. 1,1-Dichloro- ethylene (75-35-4)			X										
GC/MS FRACTION - ACID COMPOUNDS							GC/MS FRACTION - ACID COMPOUNDS						
1A. 2-Chloro- phenol (88-37-8)			X				7A. 4-Nitrophenol (100-02-7)			X			
2A. 2,4-Dichloro- phenol (120-83-2)			X				8A. p-Chloro-M- Cresol (99-50-7)			X			
3A. 2,4-Dimethyl- phenol (105-67-0)			X				9A. Pentachloro- phenol (87-66-6)			X			
4A. 4,6-Dinitro-O- Cresol (834-62-1)			X				10A. Phenol (108-95-2)			X			
5A. 2,4-Dinitro- phenol (51-28-5)			X				11A. 2,4,6-Tris- chlorophenol (68-06-2)			X			
6A. 2-Nitro- phenol (88-73-5)			X										

APPLICATION FOR PERMIT TO DISCHARGE TO A DOMESTIC TREATMENT WORKING

Effluent Data - Part D (Continued)

Outfall No. 2 Building 103

POLLUTANT AND CAS NO. (If available)		MARK "X"			EFFLUENT CONCENTRATION	UNITS	NO. OF ANALYSES	POLLUTANT AND CAS NO. (If available)		MARK "X"			EFFLUENT CONCENTRATION	UNITS	NO. OF ANALYSES
Test- ing Re- quired	Be- lieved Pre- sent	Be- lieved Ab- sent	Test- ing Re- quired	Be- lieved Pre- sent				Be- lieved Ab- sent							
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS								GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS							
1B. Acenaphthene (83-32-0)			X					21B. Diethyl Phthalate (84-66-2)	X						
2B. Acenaphthylene (208-96-8)			X					25B. Dimethyl Phthalate (131-11-3)			X				
3B. Anthracene (120-12-7)			X					26B. Di-N-Butyl Phthalate (84-74-2)			X				
4B. Benidine (92-87-6)			X					27B. 2,4-Dinitro- toluene(121-14-2)			X				
5B. Benz (a) Anthracene (56-85-3)			X					28B. 2,6-Dinitro- toluene(804-20-2)			X				
6B. Benz (a) Pyrene (50-32-6)			X					29B. Di-N-Octyl Phthalate (117-84-0)			X				
7B. 3,4-Benzo- Quinoline (205-99-2)			X					30B. 1,2-Diphenyl hydrazine(as Azo- benzene)(122-66-7)			X				
8B. Benz (ghi) Perylene (191-24-2)			X					31B. Fluoranthene (206-44-0)			X				
9B. Benz (h) Fluoranthene (207-08-9)			X					32B. Fluorane (84-73-7)			X				
10B. Bis (2-Chloro- ethoxy) Methane (111-91-1)			X					33B. Hexa- chlorobenzene (118-71-1)			X				
11B. Bis (2-Chloro- ethyl) Ether (111-44-4)			X					34B. Hexa- chlorobutadiene (87-68-3)			X				
12B. Bis (2-Chloro- isopropyl) Ether (39638-32-9)			X					35B. Hexachloro- cyclopentadiene (77-47-4)			X				
13B. Bis (2-Ethyl- hexyl) Phthalate (117-81-7)			X					36B. Hexachloro- ethane(67-72-1)			X				
14B. 4-Bromo- phenyl Phenyl Ether (101-55-2)			X					37B. Indene (1,2,3-cd)Pyrene (192-39-5)			X				
1. Butyl Benzyl Malate (85-68-7)			X					38B. Isophorone (74-56-1)			X				
16B. 2-Chloro- naphthalene (91-58-7)			X					39B. Naphthalene (91-20-3)			X				
17B. 4-Chloro- phenyl Phenyl Ether (7005-72-3)			X					40B. Nitrobenzene (98-95-3)			X				
18B. Chrysene (218-01-9)			X					41B. N-Nitro- sodimethylamine (62-75-9)			X				
19B. Dibenzo (a,h) Anthracene (53-70-3)			X					42B. N-Nitrosodi- N-Propylamine (621-44-7)			X				
20B. 1,2-Dichloro- benzene (85-50-1)			X					43B. N-Nitro- sodiphenylamine (88-30-6)			X				
21B. 1,3-Dichloro- benzene (541-73-1)			X					44B. Phenanth- rene (88-01-8)			X				
22B. 1,4-Dichloro- benzene(106-46-7)			X					45B. Pyrene (129-00-0)			X				
23B. 3,3'-Dichloro- benzidine (91-94-1)			X					46B. 1,2,4-Tri- chlorobenzene (120-82-1)			X				
GC/MS FRACTION - PESTICIDES								GC/MS FRACTION - PESTICIDES							
1P. Aldrin (309-00-2)			X					14P. Endos (72-20-8)			X				
2P. Alpha BHC (319-84-6)			X					15P. Endos Aldehyde (7421-83-4)			X				
3P. Beta BHC (319-85-7)			X					16P. Heptachlor (76-44-8)			X				
4P. Gamma BHC (88-89-9)			X					17P. Heptachlor Epoxide (1024-37-3)			X				
5P. Delta BHC (319-86-6)			X					18P. PCB-1243 (83469-21-9)			X				
6P. Chlordane (57-74-9)			X					19P. PCB-1354 (11097-49-1)			X				
7P. 4,4'-DDT (50-29-3)			X					20P. PCB-1221 (11104-28-2)			X				
8P. 4,4'-DDE (72-85-9)			X					21P. PCB-1233 (11141-16-8)			X				
9P. 4,4'-DDD (72-84-8)			X					22P. PCB-1248 (12672-29-4)			X				
10P. Dieldrin (60-57-1)			X					23P. PCB-1260 (11096-82-5)			X				
11P. Alpha Endo- sulfan (959-98-4)			X					24P. PCB-1018 (12874-11-2)			X				
12P. Beta Endo- sulfan (33213-43-9)			X					25P. Toxaphene (8001-35-2)			X				
13P. Endosulfan Sulfate			X												

Expend Data - Part D

Outfall No. 3 Building 105

DIOXIN (NOTE: See Section 10.5(c) 10.v. of the NJPDES Regulation prior to completing this item.)				
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-4)				DESCRIBE RESULTS See accompanying attachment

GC/MS FRACTION - ACID COMPOUNDS						GC/MS FRACTION - ACID COMPOUNDS							
1A. 3-Chloro-phenol (98-57-8)				IT .025	mg/l	X	7A. 4-Nitrophenol (100-02-7)			X			
2A. 2,4-Dichloro-phenol (120-83-2)			X				8A. P-Chloro-M-Cresol (99-50-7)			X			
4A. 2,4-Dimethyl-phenol (108-67-9)			X				9A. Pentachloro-phenol (87-86-8)			X			
6A. 4,6-Dinitro-O-Cresol (834-62-1)			X				10A. Phenol (108-95-2)			X			
5A. 2,6-Dinitro-phenol (81-28-5)			X				11A. 2,4,6-Trichlorophenol (88-06-2)			X			
6A. 2-Nitro-phenol (88-73-5)			X										

2,4,5-TRICHLOROPHENOL

ANALYSIS FOR TCDD

(2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN)

Analysis Performed by Quality Assurance

<u>Lab #</u>	<u>Approximate Date Sent for Analysis</u>		<u>p.p.b.</u>
	3/17/78	Celemark T.C.P. 07057 07117	<1.0 <1.0
241 240	Sept. 1978	Celemark 9517-78 9516-78	<1.0 <1.0
	5/11/79	Vertac T.C.P. 6995 1-2 3-4 5-6 7-8	<1.0 <1.0 <1.0 <1.0
419	11/79	Thatcher Chem.Special Samples 15100-79	<1.0
449	2/80	Linz T.C.P. Special Sample 17989-79	2.9
520	5/29/80	Filter Cake 50 g. S _a Reported <10	<0.2
761	12/13/81	Caustic Water Layer from T.C.P. Drum Washes	<1.0
762	12/13/81	Solids & Extracts & Distillate from T.C.P. Waters	<1.0
881	4/22/83	Linz T.C.P. (3594-83) Drums 1 & 4	<1.0
882	4/22/83	Celamerck (3233 & 3244-83)	<1.0
885	4/22/83	Celamerck (8022-82)	<1.0
897	5/27/83	Celamerck #12 & #13 (4887-83)	<1.0

April 19, 1983

June 24, 1983 (Revised)

9-100000

INTER-OFFICE MEMO

Date: December 8, 1981

To: V. Iappelli

Div.

Subject: TCDD ANALYSIS

From: L. A. Levy

Copies for: R. Dahill
P. Doucette
P. Gross

The samples of Caustic Washes from the TCP drums and solids and extracts of TCP waters were sent to California Analytical Laboratories for evaluation.

The results received indicate that the Caustic Water from TCP washes contained < 10 ppb/50 g. sample and the solids contained < 10 ppb in 5 grams of sample.

The analytical report to reference these materials is California Report 13872 and the samples referenced by 13872-10 and 11, respectively.

I trust this information will be satisfactory.

LAL/rd



INTER-OFFICE MEMO

Date: January 18, 1982


GIVAUDAN

To: Mr. K. Aspinwall

From: Mr. P. Porcaro

Div:

CC: Drs. Manowitz, Gross, Mr. Iapelli, Ms. Brooks

Subject: Recov. Sulfuric Acid from G-11 (ARR 20062)

*Package for
Dr. Gross*

We have analyzed this material for TCDD and find none detectable. Our detection limit, based on recovery studies, is around ppb by GC/EC.

P. Porcaro

G-11/TCP/TCDD

:dj

PAUL A. TAYLOR, Ph.D.
PRESIDENT

CHARLES J. SODERQUIST, Ph.D.
VICE PRESIDENT

ANTHONY S. WONG, Ph.D.
VICE PRESIDENT

RUBY A. ULRICH
SECRETARY/TREASURER

California Analytical Laboratories, Inc.

5895 POWER INN ROAD
SACRAMENTO, CALIFORNIA 95824
(916) 381-5105

May 11, 1983
Lab No. 16035
Received: 4/15/83

Givaudan Corporation
125 Delwanna Ave
Clifton, NJ 07014

Eight samples received for TCDD analysis.

CAL I.D.	SAMPLE I.D.	ng/bottle	ppb in sample
16035-1	866	150	
-2	867	<10	<0.1
-3	868	<10	<1.0
-4	869	<10	<0.1
-5	870	<10	<0.1
-6	871	<10	<0.1
-7	872	<10	<0.1
-8	873	<10	<0.1

#867 G-11 Spent Sulfuric acid (sample of 3/10/83: (100g. neutralized & extract

#868 Filter Cake for burial, (83-90) material dissolved in Methanol, filtered & extracted.

#869 Ethylene Dichloride storage tank T4611 (100g. sample evaporated to about 10 ml. & extracted.)

#870 G-11 Waters from Vacuum receiver from drier (100g. sample).

#871 Waters recovered from catch-all tank (E.D. Steamer to sewer (100g. sample

#872 Waters from T.C.P. extracted with E.D. to sewer (100g. sample).

#873 Water wash from G-11 filter (press bt. #24) 100g. sample.

Anthony S. Wong
Anthony S. Wong, PhD
Vice President
Research and Analytical Services

kk

Ch. In Monrovia
in Rankin

**NIOSH Dioxin Registry Site Visit Report
of
Givaudan Corporation
Clifton, New Jersey**

**Site Visit Dates
June 20, 1983, June 11, 1984,
August 25, 1986, and September 8, 1986**

**Report Written by:
Laurie Piacitelli
David Marlow
Marilyn A. Fingerhut**

**Date of Report:
December, 1990**

**Report Number:
117.22**

**Industrial Hygiene Section
Industrywide Studies Branch
Division of Surveillance, Hazard Evaluations and Field Studies
National Institute for Occupational Safety and Health
Centers for Disease Control
Cincinnati, Ohio**

Givaudan collected 6 samples, each being a bulk from 2 to 4 lots, of HCP manufactured during the second half of 1969 and 5 samples of HCP from single, random lots produced in 1970. The samples were extracted with benzene and sent to Hooker Chemical Corporation for analysis. No detectable levels of 2,3,7,8-TCDD were found in the 11 samples, the limit of detection ranged from 0.01 to 0.03 ppm. Hooker Chemical Corporation analyzed an additional HCP sample on March 12, 1971. The sample was non-detectable, with a lower limit of detection of 0.1 ppm. Givaudan began monthly sampling of random lots of HCP for 2,3,7,8-TCDD in January, 1976. Starting in mid-November, 1976, analysis was conducted on a bulked 10 gram sample of 5 grams from each of two consecutive, HCP lots that had been determined acceptable by quality control. The samples were extracted with hexane, (see Figure 4) concentrated by evaporation and sent to California Analytical Laboratories for 2,3,7,8-TCDD analysis by gas chromatography-mass spectroscopy (GC-MS). A total of 212 samples of HCP manufactured between January, 1976 and July, 1977 were analyzed. Ninety percent of the HCP sample results contained less than 1.0 ppb 2,3,7,8-TCDD. The detectable samples (n=17) ranged from 1.5 to 4.0 ppb with an arithmetic mean of 2.4 ppb. Givaudan reported in an inter-office memo dated June 22, 1983, that the higher 2,3,7,8-TCDD levels were attributed to interferences in the GC-MS analysis which probably could have been eliminated through reanalysis or additional sample clean-up. However, since the 2,3,7,8-TCDD limit at that time was established at 10 ppb, these samples were not reevaluated. The same 1983 memo reported that all samples (number of samples was not reported) evaluated after 1978 were found to contain less than 1.0 ppb.

2,3,7,8-TCDD Concentrations in Process By-Products

A sample of the sanitary sewer discharge from the Clifton facility was collected in October, November and December of 1982 and analyzed for 2,3,7,8-TCDD by Atlantic Ecology Lab., Lakewood, New Jersey. All three samples were below the 10 ppb limit of detection. Eight samples of process by-products were collected in May, 1983. The samples were analyzed for 2,3,7,8-TCDD by California Analytical Laboratories, Inc. and are reported in Table 5. Seven of the samples were non-detectable, the lower limit of detection ranged from 0.1 to 1.0 ppb. For the 8th sample, 150 nanograms per bottle was reported, however, no sample volume or concentration was given.

Three HCP process samples from Givaudan were analyzed by the EPA as part of an analytical methods development study of process wastes and related materials from plants with potential chlorinated dioxin contamination (Table 6).¹ No TCDD in excess of the minimum detectable concentrations which ranged between 50-140 ppt was found in the Givaudan samples.

2,3,7,8-TCDD Concentrations in Environmental Samples

Limited industrial hygiene data was collected that evaluated worker exposure to 2,3,7,8-TCDD. The Occupational Safety and Health Administration conducted an inspection at the Clifton plant during the period April 8, 1981, through May 14, 1981. Airborne samples were collected in all HCP areas, in Buildings

Table 5
Results of Samples of
Process By-Products for
2,3,7,8-TCDD Analysis
Givaudan Corporation
Clifton, New Jersey

Sample ID	Sample Preparation	Nanograms /bottle	2,3,7,8-TCDD Parts per billion
867	*	150	*
867 HCP Spent sulphuric acid	100 grams neutralized & extracted	<10	<0.1
868 Filter cake for burial	Material dissolved in methanol, filtered & extracted	<10	<1.0
869 EO ethylene storage tank	100 gram sample evaporated to about 10 ml & extracted	<10	<0.1
870 HCP water from vacuum receiver from dryer	100 gram sample	<10	<0.1
871 Water recovered from catch-all tank, ethylene dichloride steamer to sewer	100 gram sample	<10	<0.1
872 Water from TCP extracted with ethylene dichloride to sewer	100 gram sample	<10	<0.1
873 Water wash from HCP filter	100 gram sample	<10	<0.1

*Not reported

Source: Compiled from documents supplied by the Givaudan Corporation in a letter dated July 1, 1983, from Dr. M. Manowitz, Director of R&D to Dr. Marilyn Fingerhut, NIOSH.

Table 6
E.P.A. Analysis Results for
2,3,7,8-TCDD in Three
Givaudan Process Samples
Givaudan Corporation
Clifton, New Jersey

EPA Sample Number	Sample	Quantity of TCDD's found	Minimum detectable Concentration pg/g (ppt)*
C04130	Aqueous slurry of HCP	ND**	140
C04131	Activated clay filter cake from HCP manufacturing	ND	70
C04132	Ethylene dichloride recovery solution from HCP manufacturing	ND	50

* pg/g (ppt) = picograms per gram (parts per trillion)

** ND = No TCDD's detected in excess of minimum detectable concentration.

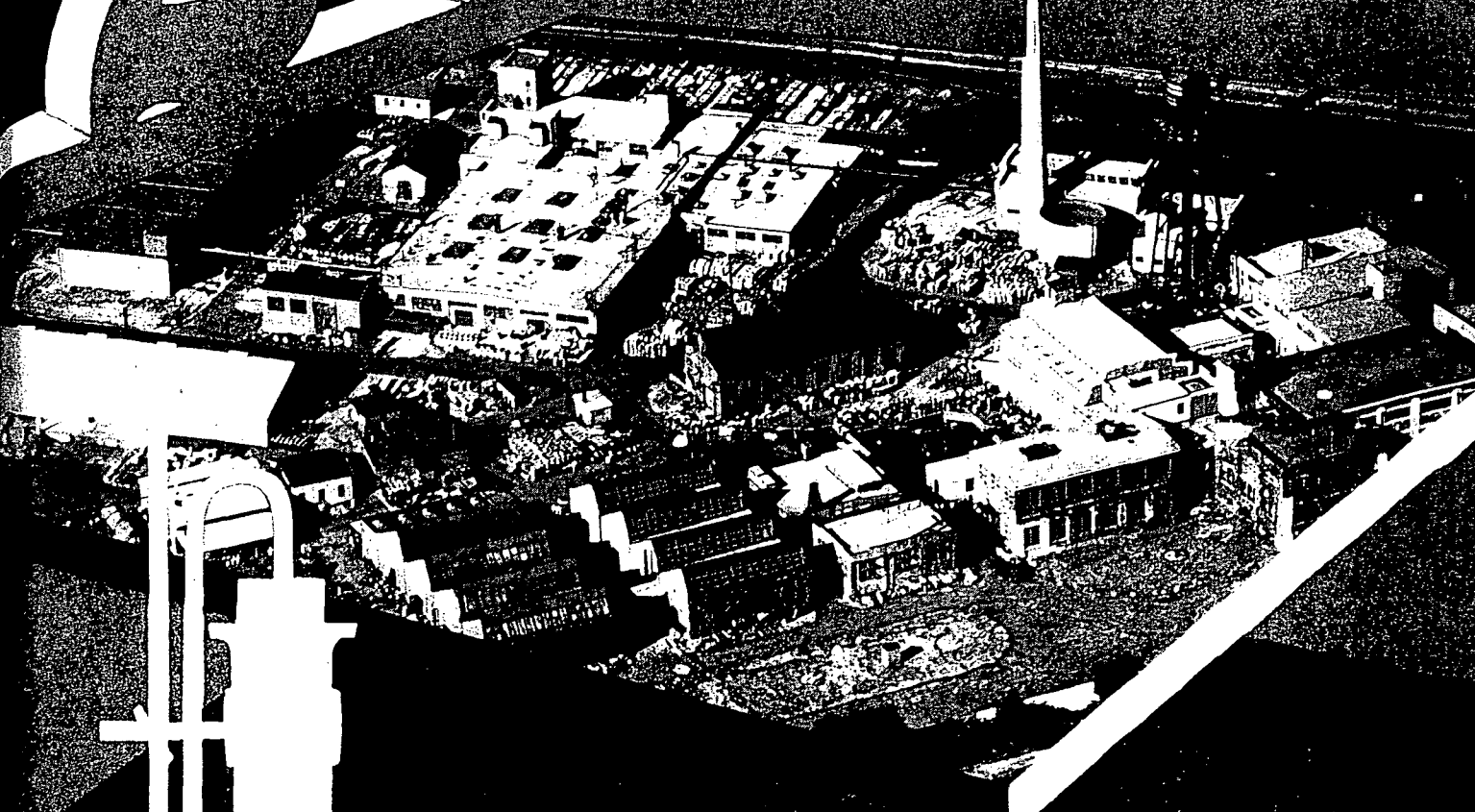
Source: Esposito, M.P., Tiernan, T.O. and Dryden, F.E. (1980) Dioxins,
Environmental Protection Agency Publication EPA 600/2-80-197,
page 154.

ATTACHMENT J



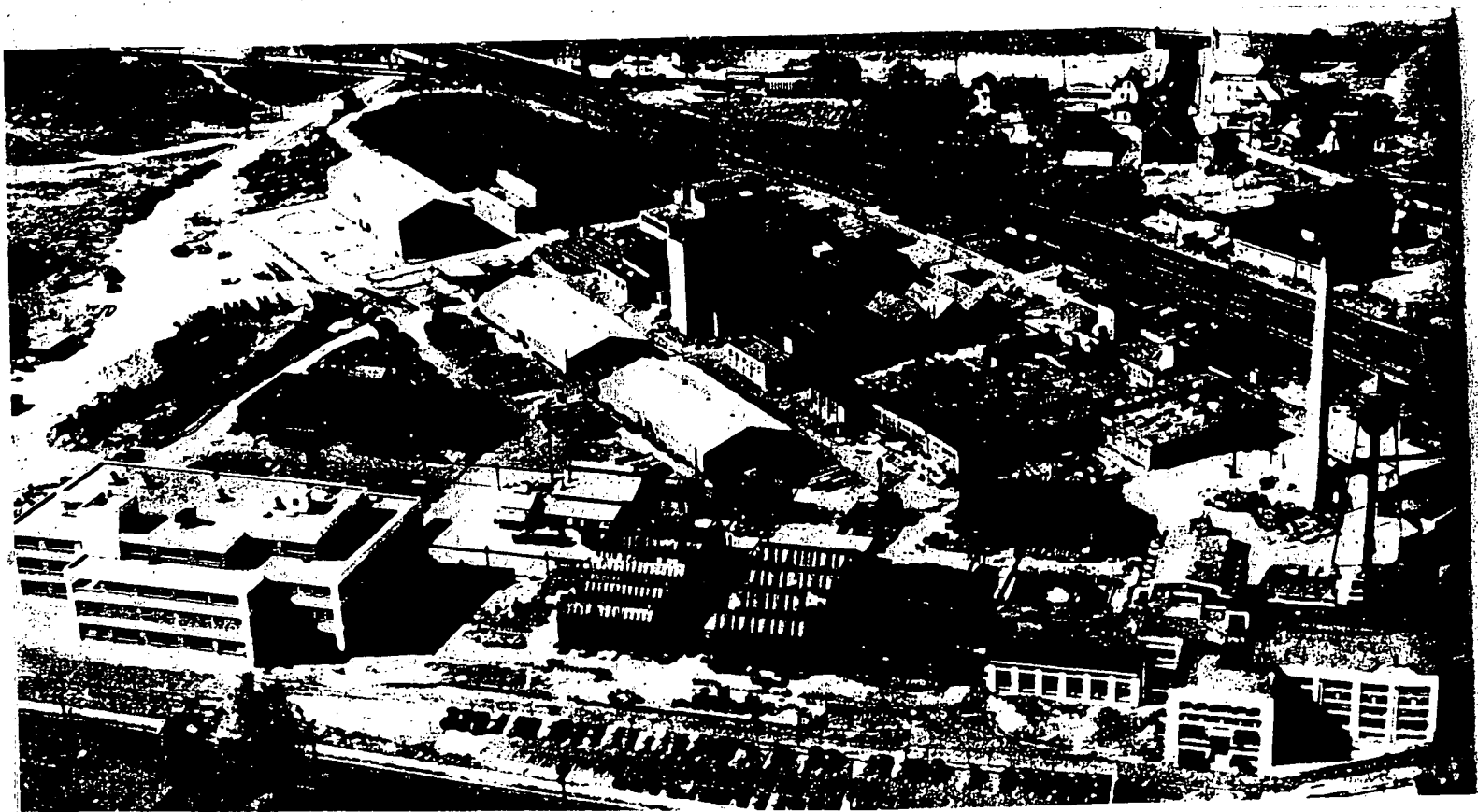
ADDITIONAL HISTORICAL AERIAL PHOTOGRAPHS

120th ANNIVERSARY



**GIVAUDAN-
DELAWANNA, INC.**

1924 . . . 1944



ATTACHMENT I

FACILITY EFFLUENT DATA

**Under the direction of Sarah Flanagan, ORC and
Robert Keating, Records Center Manager,
attachments were not scanned.**

Givaudan Fragrances Corp.

DIAMOND ALKALI SUPERFUND SITE

NJD980528996